AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An optical wave-guide absorption cell, comprising:

a first wave-guide;

~~a primary core including~~ a holey wave-guide filled with a known selective absorption medium, wherein a first terminus of said holey wave-guide is coupled to a first terminus of said first wave-guide[[;]], said holey wave-guide comprising:

a primary core;

a secondary core surrounding said primary core and comprising a plurality of voids filled with said known selective absorption medium; and

a cladding region surrounding said secondary core, wherein said cladding region has a lower index of refraction than said primary core and said secondary core; and

~~a secondary core including said primary core; and~~

a second wave-guide, wherein a first terminus of said second wave-guide is coupled to a second terminus of said holey wave-guide.

2. (Original) The optical wave-guide absorption cell according to Claim 1, wherein said first terminus of said holey wave-guide is coupled to said first terminus of said first wave-guide utilizing a fusion splice.

3. (Original) The optical wave-guide absorption cell according to Claim 1, wherein said first terminus of said holey wave-guide is coupled to said first terminus of said first wave-guide utilizing a light transmitting adhesive.

4. (Previously Presented) The optical wave-guide absorption cell according to Claim 1, wherein said holey wave-guide comprises:

a plurality of voids formed in said primary core.

5. (Currently Amended) The optical wave-guide absorption cell according to Claim 4, wherein said holey wave-guide further comprises a fill hole formed in said fiber optic absorption cell ~~primary core~~, wherein said fill hole is an opening into said ~~primary core~~ plurality of voids that is not at said first terminus of said holey wave-guide and is not at said second terminus of said holey wave-guide, said fill hole adapted to introduce said known selective absorption medium into said plurality of voids.

6. (Original) The optical wave-guide absorption cell according to Claim 1, wherein:

said first wave-guide comprises a first fiber optic cable;

said holey wave-guide comprises a holey fiber optic cable; and

said second wave-guide comprises a second fiber optic cable.

7. (Currently Amended) A fiber optic absorption cell comprising a holey fiber optic cable adapted for propagating an optical signal, wherein said holey fiber optic cable comprises:

a primary core;

a secondary core surrounding ~~that includes~~ said primary core;

a plurality of voids formed in said secondary ~~primary~~ core;

a known selective absorption medium filling said plurality of voids;

a cladding region surrounding said secondary core, wherein said cladding region has a lower index of refraction than said primary core and said secondary core; and

a fill hole formed in said fiber optic absorption cell ~~primary core~~, wherein said fill hole is an opening into said ~~primary core~~ plurality of voids that is not at a terminus of said holey fiber optic cable, said fill hole adapted to introduce said known selective absorption medium into said plurality of voids.

8. (Currently Amended) The fiber optic absorption cell according to Claim 7, wherein said holy fiber optic cable further comprises an evacuation hole formed in said fiber optic absorption cell ~~primary core~~, wherein said evacuation hole is an opening into said ~~primary core~~ plurality of voids that is not at a terminus of said holey fiber optic cable, said evacuation hole adapted to introduce said known selective absorption medium into said plurality of voids.

9. (Original) The fiber optic absorption cell according to Claim 7, further comprising a first fiber optic cable attached to a first terminus of said holey fiber optic cable, adapted to couple said optical signal from a light source to said holey fiber optic cable.

10. (Original) The fiber optic absorption cell according to Claim 7, further comprising a second fiber optic cable attached to a second terminus of said holey fiber optic cable, adapted to couple said optical signal from said holey fiber optic cable to a detector.

11 through 49. (Cancelled)